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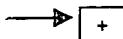
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PTO/SB/01 (12-97)

Approved for use through 9/30/00. OMB 0651-0032

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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<b>DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)</b>  <input type="checkbox"/> Declaration Submitted with Initial Filing      OR <input checked="" type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16(e)) required)	Attorney Docket Number	26831-701
	First Named Inventor	ATANACKOVIC
	<b>COMPLETE IF KNOWN</b>	
	Application Number	09/924,392
	Filing Date	08/07/2001
	Group Art Unit	2633
Examiner Name	Not Assigned	

As a below named Inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**DEVICES WITH OPTICAL GAIN IN SILICON**

(Title of the Invention)

the specification of which  
☐ is attached hereto  
OR

☒ was filed on (MM/DD/YYYY)

08/07/2001

as United States Application Number or PCT International

Application Number 09/924,392 and was amended on (MM/DD/YYYY) ☐ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/028 attached hereto.

I hereby claim the benefit under 35 U.S.C. 119(h) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/028 attached hereto.
60/223,874	08/08/2000	

(Page 1 of 2)

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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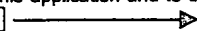
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## DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of the application is not designated in the prior United States or PCT international application in the manner provided by the first paragraph of 31 U.S.C. 112. I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/028 attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: ☒ Customer Number 021971 

OR

☐ Registered practitioner(s) name/registration number listed below

Place Customer  
Number Bar  
Code Label here

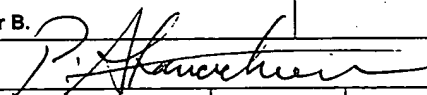
Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: ☒ Customer Number or Bar Code Label 021971 OR ☒ Correspondence address below

Name	Paul Davis						
Address	Wilson Sonsini Goodrich & Rosati						
Address	650 Page Mill Road						
City	Palo Alto	State	CA	ZIP	94304		
Country	U.S.	Telephone	650-493-9300		Fax	650-493-6811	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle (if any))				Family Name or Surname			
Petar B.				ATANACKOVIC			
Inventor's Signature						Date	23 Oct 2001
Residence: City	Palo Alto	State	CA	Country	US	Citizenship	AU
Post Office Address							
Post Office Address	2577 Waverly Street						
City	Palo Alto	State	CA	ZIP	94301	Country	US

☒ Additional inventors are being named on the 1 supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto:

Please Type a plus sign (+) inside this box



PTO/SB/02A (3-97)

Approved for use through 9/30/98, OMB 0651-0032  
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<b>DECLARATION</b>	<b>ADDITIONAL INVENTOR(S)</b> <b>Supplemental Sheet</b> Page <u>1</u> of <u>1</u>
--------------------	---

Name of Additional Joint Inventor, if any:				<input type="checkbox"/> A petition has been filed for this unsigned inventor											
Given Name (first and middle (if any))				Family Name or Surname											
Larry R.				MARSHALL											
Inventor's Signature						Date		10/25/01							
Residence: City		Mountain View		State		CA		Country		US		Citizenship		AU	
Post Office Address															
Post Office Address															
731 Calderon															
City		Mountain View		State		CA		ZIP		94041		Country		US	
Name of Additional Joint Inventor, if any:				<input type="checkbox"/> A petition has been filed for this unsigned inventor											
Given Name (first and middle (if any))				Family Name or Surname											
Inventor's Signature												Date			
City				State				Country				Citizenship			
Post Office Address															
Post Office Address															
City				State				ZIP				Country			
Name of Additional Joint Inventor, if any:				<input type="checkbox"/> A petition has been filed for this unsigned inventor											
Given Name (first and middle (if any))				Family Name or Surname											
Inventor's Signature												Date			
City				State				Country				Citizenship			
Post Office Address															
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UNITED STATES  
PATENT AND  
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JANUARY 29, 2002

PTAS

WILSON SONSINI GOODRICH & ROSATI  
PAUL DAVIS  
650 PAGE MILL ROAD  
PALO ALTO, CA 94304-1050

Under Secretary of Commerce For Intellectual Property and  
Director of the United States Patent and Trademark Office  
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\*101908198A\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 11/28/2001

REEL/FRAME: 012341/0222  
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

ATANACKOVIC, PETAR B.

DOC DATE: 11/23/2001

ASSIGNOR:

MARSHALL, LARRY R.

DOC DATE: 10/25/2001

ASSIGNEE:

TRANSLUCENT PHOTONICS, INC.  
952 COMMERCIAL STREET  
PALO ALTO, CALIFORNIA 94303

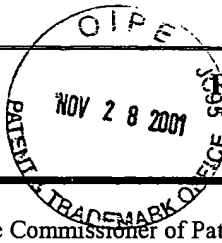
SERIAL NUMBER: 09924392

PATENT NUMBER:

FILING DATE: 08/07/2001

ISSUE DATE:

SHARON LATIMER, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS



## RECORDATION FORM COVER SHEET

## PATENTS ONLY

12-06-2001



101908198

To the Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies): 11.28.01

Petar B. Atanackovic and Larry R. Marshall

Additional name(s) of conveying party(ies) attached?

☐ Yes ☒ No

2. Name and address of receiving party(ies):

Name: Translucent Photonics, Inc.

Street Address: 952 Commercial Street

City/State/Zip: Palo Alto, CA 94303

Additional name(s) &amp; address(es) attached?

☐ Yes ☒ No

3. Nature of conveyance:

- ☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Other

Execution Date: 10/23/2001 and 10/25/2001

4. Application number(s) or patent number(s): 1

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s): 09/924,392

B. Patent No.(s):

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Paul Davis  
Internal Address: FH 1-2  
Wilson Sonsini Goodrich & Rosati  
650 Page Mill Road  
Palo Alto, CA 94304-1050

6. Total number of applications and patents involved: [1]

7. Total fee (37 CFR 3.41) ..... \$40.00

- ☐ Enclosed  
☒ Authorized to be charged to deposit account

8. Deposit account number: 23-2415  
(Attorney Docket No.: 26831-701)

## DO NOT USE THIS SPACE

9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Paul Davis

Name of Person Signing

Signature

Date

11/27/9

Total number of pages including cover sheet, attachments, and document: [2]

12/05/2001 DBYRNE 00000188 232415 09924392

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ASSIGNMENT OF APPLICATION

Docket Number 26381-701

Whereas, the undersigned:

1. Atanackovic, Petar B.  
Palo Alto, CA
2. Marshall, Larry R.  
Mountain View, CA

hereinafter termed "Inventors", have invented certain new and useful improvements in

DEVICES WITH OPTICAL GAIN IN SILICON

- ☒ for which an application for United States Patent was filed on August 7, 2001, Application No. 09/924,392  
☐ for which an application for a United States Patent was executed on \_\_\_\_\_, and

WHEREAS, Translucent Photonics, Inc., having a place of business at 952 Commercial Street, Palo Alto, CA 94303, (hereinafter termed "Assignee"), is desirous of acquiring the entire right, title and interest in and to said application and the invention disclosed therein, and in and to all embodiments of the invention, heretofore conceived, made or discovered jointly or severally by said Inventors (all collectively hereinafter termed "said invention"), and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter termed "patents") thereon granted in the United States and foreign countries.

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said Inventors to have been received in full from said Assignee:

1. Said Inventors do hereby sell, assign, transfer and convey unto said Assignee the entire right, title and interest (a) in and to said application and said invention; (b) in and to all rights to apply for foreign patents on said invention pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all applications filed and any and all patents granted on said invention in the United States or any foreign country, including each and every application filed and each and every patent granted on any application which is a divisional, substitution, continuation, or continuation-in-part of any of said applications; and (d) in and to each and every reissue or extensions of any of said patents.

2. Said Inventors hereby jointly and severally covenant and agree to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest herein conveyed in the United States and foreign countries. Such cooperation by said Inventors shall include prompt production of pertinent facts and documents, giving of testimony, execution of petitions, oaths, specifications, declarations or other papers, and other assistance all to the extent deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, divisional, continuing or additional applications covering said invention; (d) for filing and prosecuting applications for reissuance of any said patents; (e) for interference or other priority proceedings involving said invention; and (f) for legal proceedings involving said invention and any applications therefor and any patents granted thereon, including without limitation reissues and reexaminations, opposition proceedings, cancellation proceedings, priority contests, public use proceedings, infringement actions and court actions; provided, however, that the expense incurred by said Inventors in providing such cooperation shall be paid for by said Assignee.

3. The terms and covenants of this assignment shall inure to the benefit of said Assignee, its successors, assigns and other legal representatives, and shall be binding upon said Inventors, their respective heirs, legal representatives and assigns.

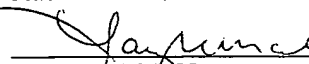
4. Said Inventors hereby jointly and severally warrant and represent that they have not entered and will not enter into any assignment, contract, or understanding in conflict herewith.

IN WITNESS WHEREOF, said Inventors have executed and delivered this instrument to said Assignee as of the dates written below:

Date: 23 Oct 2001

  
Petar B. ATANACKOVIC

Date: Oct 125, 2001

  
Larry R. MARSHALL

**POWER OF ATTORNEY BY ASSIGNEE TO EXCLUSION OF INVENTOR**  
**UNDER 37 C.F.R. § 3.71 WITH REVOCATION OF PRIOR POWERS**

The undersigned ASSIGNEE of the entire interest in:

- ☐ U.S. Patent No. \_\_\_\_\_  
☒ U.S. application no. 09/924,392, filed on August 7, 2001

hereby appoints the following attorneys of Wilson Sonsini Goodrich & Rosati:

Attorney Name	Reg. No.	Attorney Name	Reg. No.
Paul Davis	29,294	David J. Weitz	38,362
David J. Abraham	39,554	U.P. Peter Eng	39,666
George A. Willman	41,378	Shirley Chen	44,608
Kenta Suzue	45,145	Jonathan T. Manson	43,774
John Gilmore	46,375	Keith Witek	37,475

and all Wilson Sonsini Goodrich & Rosati attorneys registered to practice before the United States Patent and Trademark Office, to prosecute this application and transact all business in the United States Patent and Trademark Office in connection therewith and hereby revokes all prior powers of attorney; said appointment to be to the exclusion of the inventors and the inventors' attorneys in accordance with the provisions of 37 C.F.R. § 3.71.

The following evidentiary documents establish a chain of title from the original owner to the Assignee:

*(complete one of the following)*

- ☒ a copy of an Assignment attached hereto, which Assignment has been (or is herewith) forwarded to the Patent and Trademark Office for recording; or
- ☐ the Assignment recorded on \_\_\_\_ at reel \_\_\_\_, frames \_\_\_\_ - \_\_\_\_.

Pursuant to 37 C.F.R. § 3.73(b) the undersigned Assignee hereby states that evidentiary documents have been reviewed and hereby certifies that, to the best of ASSIGNEE's knowledge and belief, title is in the identified ASSIGNEE.

Direct all correspondence and telephone calls to:

Name	Paul Davis					
Address	Wilson Sonsini Goodrich and Rosati					
Address	650 Page Mill Road					
City	Palo Alto	State	CA	Zip	94304	Customer No.: 021971
Country	USA	Telephone	(650) 493-9300	Fax	(650) 493-6811	

ASSIGNEE:

Name:

  
ROBERT HADDAD, CEO

Date:

26 OCTOBER 2001



**INFORMATION DISCLOSURE  
CITATION**

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SERIAL NO.

39230-0701

09/924,392

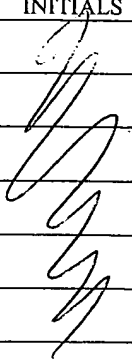
APPLICANT Atanackovic et al.

FILING DATE 08/07/01

GROUP 2633

PTO-1449

**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	4,618,381	10/21/86	Sve et al.	148	189	
	5,039,190	8/13/91	Blonder et al.	359	341	
	5,119,460	6/2/92	Bruce et al.	385	142	
	5,473,174	12/5/95	Ohsawa	257	190	
	5,643,973	6/3/97	Cabral, Jr. et al.	117	95	
	5,646,425	7/8/97	Beach	257		

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**FOREIGN PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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						<input type="checkbox"/>	<input type="checkbox"/>

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**


EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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SHEET 1 OF 1

**INFORMATION DISCLOSURE  
CITATION**

PTO-1449

ATTY. DOCKET NO.

39230-0701

SERIAL NO.

09/924,392

APPLICANT Atanackovic et al.

FILING DATE 08/07/01

GROUP 2633

**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
<i>J</i>	2002/0117573	8/29/02	Moon	257	79	

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**FOREIGN PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
<i>J</i>	0 474 447 A1	03/11/92	Europe	G02B	6/10	<input type="checkbox"/>	<input type="checkbox"/>
<i>J</i>	0 517 440 A2	12/9/92	Europe	H01S	3/06	<input type="checkbox"/>	<input type="checkbox"/>
<i>J</i>	0 578 407 A1	1/12/94	Europe	H01S	3/06	<input type="checkbox"/>	<input type="checkbox"/>
<i>J</i>	5-283743	10/29/93	Japan	H01L	33/00	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

<i>J</i>	Shin, J.H. et al., "Controlling the Quantum effects and Erbium-Carrier Interaction Using Si/SiO/sub 2/ superlattices", RARE-EARTH-DOPED MATERIALS AND DEVICES, vol. 4282, Jan. 2001, pp. 142-152.
<i>J</i>	Orlov, L.K. et al., "Comparative Analysis of Light Emitting Properties of Si:Er and Ge/Si/sub1-x/Ge/sub x/ epitaxial Structures Obtained by MBE Method", GETTERING AND DEFECT ENGINEERING IN INTERNATIONAL AUTUMN MEETING, Sept. 1999, Vol. 69-70, pp. 377-382.
<i>J</i>	Favennec, P.N. et al., "Optical Activation of ER3+ Implanted in Silicon By Oxygen Impurities", JAPANESE JOURNAL OF APPLIED PHYSICS, Vol. 29, No. 4, April 1990, pp. L524-L526.
<i>J</i>	Hak-Seung, H. et al., "Control of Location and Carrier-Interaction of Erbium Using Erbium-Doped Si/SiO/sub2/superlattice", THIN FILMS FOR OPTICAL WAVEGUIDE DEVICES AND MATERIALS FOR OPTICAL LIMITING SYMPOSIUM, Vol. 597, pp. 29-30, 2000.
<i>J</i>	Ennen, H. et al., "1.54-MUM Luminescence of Erbium-Implanted III-V Semiconductors and Silicon", APPLIED PHYSICS LETTERS, Vol. 43, No. 10, November 1983, pp. 943-945.
EXAMINER <i>J</i>	DATE CONSIDERED 4/03

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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STATEMENT**

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SERIAL NO.

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**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	4,959,694	09/25/90	Gell	357	16	
	4,618,381	10/21/86	Sato et al.	148	189	
	5,033,816	07/23/91	Blondeau et al.	350	162	
	5,039,190	08/13/91	Blonder et al.	359	341	
	5,107,538	04/21/92	Benton et al.	385	130	
	5,119,460	06/02/92	Bruce et al.	385	142	
	5,181,211	01/19/93	Burnham et al.	372	2	
	5,262,656	11/16/93	Blondeau et al.	257	80	
	5,282,260	01/25/94	Buchal et al.	385	132	
	5,351,146	09/27/94	Chan et al.	359	118	
	5,355,237	10/11/94	Lang et al.	359	130	
	5,357,591	10/18/94	Jiang et al.	385	37	

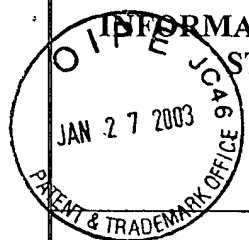
**FOREIGN PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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	0 517 440 A2	12/09/92	Europe	H01S	3/06	<input type="checkbox"/>	<input type="checkbox"/>
	0 578 407 A1	01/12/94	Europe	H01S	3/06	<input type="checkbox"/>	<input type="checkbox"/>
	1 215 781 A2	06/12/02	Europe	H01S	5/34	<input type="checkbox"/>	<input type="checkbox"/>

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	Favennec P.N. et al., "Optical Activation of Er <sup>3+</sup> Implanted in Silicon By Oxygen Impurities", Jap. Journ. App. Phys. Vol. 29, No. 4, April 1990, pp. 524-526.
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**INFORMATION DISCLOSURE  
STATEMENT**

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ATTY. DOCKET NO.

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APPLICANT Atanackovic et al.

FILING DATE 08/07/01

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**Notice of References Cited**

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Applicant(s)/Patent Under  
Reexamination  
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Art Unit

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**NON-PATENT DOCUMENTS**

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